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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,499	01/11/2006	David Gerard	271325US3XPCT	4511
22850	7590	10/11/2007		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER LAJOS, MARIA J	
			ART UNIT 1795	PAPER NUMBER
			NOTIFICATION DATE 10/11/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/534,499

Applicant(s)

GERARD, DAVID

Examiner

Maria J. Laios

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 7-14, 16 and 17 is/are rejected.
- 7) ☒ Claim(s) 15 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

The objection to the specification has been withdrawn. Claims 7 and 11 have been amended. Claims 13-18 have been added.

Allowable Subject Matter

1. Claims 15 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The closest prior art of record Hinsenkamp (DE 100 18 067 A1) includes an exhaust stream entering the turbine/expander (20) then a condenser/separator (24) and finally a compressor (14), the reverse of what is claimed and would not have been obvious to modify Hinsenkamp with out rendering the reference inoperable.

Claim Objections

2. Claim 11 is objected to because of the following informalities: In the limitation of "liquefying the water vapor discharged from the compressor by the condenser disposed directly downstream from condenser" this should be downstream from the compressor and not the condenser. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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5. Claim 10 recites the limitation "the turbine" in line 3 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 7, 11- 13 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Takei et al. (US 5,958,614).

With respect to claim 7, Takei et al. discloses a fuel cell stack (14) with at least one orifice (8c and 9d) for evacuation of residual gases which are composed mainly of air and water vapor (these are typical of a fuel cell) which are discharged into an evacuation conduit (8c and 9d) in which there is disposed a condenser that liquefies the water vapor and a compressor (16) interposed directly upstream from the condenser (18a/18) such that the residual gases are transferred from the compressor to the condenser, where in the liquid water is diverted from the evacuation conduit to a liquid water circuit (in this case it can include 18 and 20) and the compressor compresses the residual gases such that a dew point temperature of the water vapor is high than a temperature of the condenser, this is inherent of the system because otherwise the compressor would liquefy the vapor in the compressor and the condenser would not be necessary.

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With respect to claim 11, Takei et al. discloses a method for generating electricity by a fuel cell stack by discharging residual gases into an evacuation conduit ((8c or 9d) via at least one orifice for evacuation of the residual gases, the residual gases being composed mainly of air and water vapor (these are typical of a fuel cell) compressing the residual gases by the compressor (16) such that a dew temperature of the water vapor is higher than a temperature of a condenser (this would be inherent due to the fact that the condenser is after the compressor otherwise the compressor would liquefy the water itself), liquefying the water vapor discharged from the compressor by the condenser (18a,18) disposed directly downstream from the compressor (16) and diverting the liquid water from the evacuation conduit to a liquid water circuit (18, 20).

With respect to claim 12, Takei et al. suggests the use of a fuel cell in a vehicle (col. 1 line 17 and 18).

With respect to claim 13 and 16, Takei et al. discloses the Lysholm compressor (16) generate a high pressure of about 350 kPa (about 3.5 bars which is close to 4 bars) when used for a fuel cell (col. 3 line 47-48).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 8 -10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takei et al (US 5,958,614) in view of Hinsenkamp (DE 100 18 067 A1).

With respect to claims 8 and 9, Takei et al. discloses the system as discussed in claim 7 above and incorporated herein but fails to include a turbine in the system. Hinsenkamp teaches having a turbine (21,expander) connected to the compressor (14) by drive shaft (23) downstream from condenser via the fuel cell and the combustion chamber.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include a turbine/expander in the system, which would drive the compressor thus making the system more efficient by recycling the exhaust gas of the anode and the cathode (9e) coming out of the combustion chamber.

With respect to claim 10, Takei discloses a reformer (RE) which feeds the fuel cell stack (14) with fuel and which discharges the exhaust gases of the cathode should be under pressure because the exhaust of the compressor (16) is pressurized which enters the cathode but fails to disclose the turbine. Hinsenkamp teaches having a turbine (21,expander) connected to the compressor (14) by drive shaft (23) downstream from condenser via the fuel cell and the combustion chamber.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include a turbine/expander in the system, which would drive the compressor thus making the system more efficient by recycling the exhaust gas of the anode and cathode (9e), which would have been exhausted into the atmosphere.

10. Claims 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takei (US 5,958,614) in view of Cownden (US 6316134 B1).

With respect to claims 14 and 17, Takei discloses the water liquid circuit, which includes a water reservoir and a pump (18, 20) and a reformer (RE) but fails to disclose the liquid water supplied to the reformer and a humidifying device. Cownden et al discloses a humidifier directly connected to the reformer (Abstract). The water is necessary for the reforming reaction to proceed.

It would have been obvious to one of ordinary skill in the art at the time of the invention to divert some of the water from the water reservoir to the humidifier of Cownden, in order to allow the reforming reaction to proceed while maintaining the appropriate level of hydration. Also the water would keep the membrane hydrated.

Response to Arguments

11. Applicant's arguments with respect to claim 7-12 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria J. Laios whose telephone number is 571-272-9808. The examiner can normally be reached on Monday - Thursday 9:30 - 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJL


SUSYTSANG-FOSTER
PRIMARY EXAMINER